



Minnesota Plant Press

Vol. 10:1 Newsletter Of The Minnesota Native Plant Society, Fall 1990

Upcoming Monthly Meetings

- November** - National Wildflower Research Center--Bonnie Harper
December - Forest Intensification--Jan Green
January - To be announced
February - Restoration of the American Chestnut in Minnesota --Charles Burnham
March - Vegetation of Kittson County, Minnesota's Northwest Frontier--Robert Dana
April - Why and How We Burn Prairies--Rick Johnson
May - Nature photography show, field trip preview, plant sale

Some "Do's" and "Don'ts" for Wildflower Gardeners

May Wright's Gardening Notes

Whether you are restoring a large area or just planting a small wildflower garden, you should keep in mind the following considerations.

Be aware of the distinction between the terms "wildflower" and "native herbaceous plant". As used in the wider sense, "wildflower" refers to any non-woody flowering plant that grows without cultivation, i.e. in the wild. A native herbaceous plant is a non-woody flowering species that was present in a particular area before settlers arrived from Europe. In other words, "native" excludes species introduced since settlement. The term is used for a designated area, usually the country, but it could be the state of a more local area.

How can one find out readily which are native to our country and state and which are non-native (alien, exotic, introduced)? Most of the leading books on wildflowers indicate which are alien to our country. The range of the native species given in these books then helps to pinpoint those of Minnesota. A book titled, "The Vascular Plants of Minnesota, Checklist and Atlas" by Gerald B. Ownbey and Thomas Morley is a good source of this information (still in press).

Why is it important to know this difference? Alien plant species are not a part of the area's ecosystem and so do not have the natural check that the native species have. They may become so aggressive as to displace the various native species and disrupt the wildlife that depend on them. A species may show some diversity in its genetic makeup from one area to another. If displaced by aliens from some areas, its genetic diversity will be lost.

The following are introduced species that should be especially avoided. They may appear to be attractive garden plants but they should not be planted because they are known to be aggressive spreaders.

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Editors Notes: Bob Jacobson & Sarah Vest

This fall we assumed the duties of publishing the MNPS newsletter. Our goal is to streamline the process by which articles and information are submitted for publication by the membership. The newsletter is being produced on an Apple Macintosh computer. Articles submitted on a Macintosh formatted floppy disk in would be very helpful (we can also transfer IBM formatted discs to Macintosh.) Articles that are one page or longer should be sent on a **computer disk**, with the name of the computer program written on it. Articles should be no longer than two pages in length. All work should be in final form, ready to go to the printer. Your help in following these guidelines will make our job a lot easier. To submit information for publication in the Minnesota Plant Press, send all material to:

Sarah Vest

Oops! The chart- "Relative Flowering Time, Height and Color of some Woodland Wildflowers in a Central Minnesota Garden", that was printed in the last Minnesota Plant Press was written by May Wright.

Announcements

• **MNPS's Annual Symposium**— The MNPS's annual symposium is to be held at the Minnesota Valley National Wildlife Refuge, April 6, 1991. If you would be interested in coordinating the symposium, chairing a committee such as program, refreshments or publicity, or assisting in any way, please contact a member of the board— names and phone numbers listed on page 10.

• **MNPS Membership Renewals Are Due NOW!**

While new members may join at any time, as stated in our bylaws, all memberships are to be renewed each fall. To avoid a delinquent membership and missing issues of the newsletter, please have your memberships dues paid by **20 November 1990**. Some people have paid their memberships several years in advance, and new members that joined during the past summer are paid through next year, so please **check your mailing label for your renewal date**. Because of rising costs, the board has voted to raise the membership dues slightly. Renewal form is on the page 10. This will be your only renewal notice!

("Do's" and Don'ts" for Wildflower Gardeners continued from page 1)

Avoid These Introduced Species

European Bellflower, *Campanula rapunculoides*
Chicory, *Cichorium intybus*
Ox-eye Daisy, *Chrysanthemum leucanthemum*
Queen Anne's Lace, *Daucus carota*
Orange Hawkweed, *Hieraceum aurantiacum*
Purple Loosestrife, *Lythrum salicaria*

If we as gardeners are careful, we can still save our native flora, unlike the condition in England and Hawaii where they now bemoan the loss of theirs. *(Continued on page 3)*

Another important consideration is that the present wide interest in certain wildflowers may lead to their destruction in their native habitat. This can be avoided if gardeners buy plants from local nurseries that are known to propagate their plants rather than dig them from the wild. Emphasis on research about efficient propagation methods is necessary in this respect.

In choosing native species to be planted, thought should be given their ease of spreading. Those that spread readily may be used in large areas or as ground covers in difficult or separate spots. In small gardens they may be hard to keep in check.

Use These Native Species That Spread Rapidly

Shade

Baneberries, *Actaea* spp.
Wild Ginger, *Asarum canadense*
Waterleaf, *Hydrophyllum virginianum*
Mayapple, *Podophyllum peltatum*
Violets, *Viola* spp.

Acid Soils

Northern Bedstraw, *Galium boreale*
Wild Lily-of-the-Valley, *Maianthemum canadense*
Shinleaf, *Pyrola elliptica*

Sun

Canada Anemone, *Anemone canadensis*
Common Milkweed, *Asclepias syriaca*
Partridge Pea, *Cassia fasciculata*
Sunflowers, *Helianthus* spp.
Goldenrods, *Solidago* spp.

Native Ferns

Ostrich Fern, *Matteuccia struthiopteris*
Sensitive Fern, *Onoclea sensibilis*
Bracken Fern, *Pteridium aquilinum*

"U of M" Requests Funds to Study Native Plant Diversity

Nancy Sather

As those of you who were at the October meeting already know, the University of Minnesota's Plant Biology Department is seeking funding for an endowed Chair in the Origin and Conservation of Plant Diversity. They have come to the Native Plant Society with a request that we help them raise \$10,000 toward a private match of 1/2 million needed for the Chair. Because this is a sacrificially large request and because members may have questions about the Chair the first part of the November general meeting included a discussion of the proposal. A representative of the University was on hand to answer member's questions. The topic will also be discussed at the Board meeting immediately preceding the December meeting. Members with a concern about either the level of funding or the Chair itself are encouraged to join the Board at 6:00 PM in the cafeteria of the St. Paul Student Center.

The following paragraphs include portions of the letter to the Society from the Plant Biology Department, an endorsement of the project by Dr. John Doebley, and expressions of some concern about the appropriateness of this fund drive as a Plant Society project by John Moriarty. The issue is not a straightforward one and members of your Board are of a divided mind, some strongly supporting the project and others seriously opposing it. **Your questions, opinions, and input are needed in making this important decision .**

Plant Biology Dept. Requests Fund-raising Assistance

Erwin Rubenstein, Chairman of the Plant Biology Department

The Plant Biology Department at the University of Minnesota has been offered an opportunity that is unique in its history. Matching funds have been made available for up to 1/2 million dollars from the Permanent University Fund to endow a Chair in the Origin and Conservation of Plant Diversity. Our challenge is to raise 1/2 million dollars from private sources. We hope that the Minnesota Native Plant Society will help us to meet that challenge.

Major environmental changes are probable in the near future because of acid rain, the depletion of the ozone layer, the greenhouse effect, deforestation, and agricultural practices, to list a few. Because of Minnesota's location on the border of three vegetational zones- boreal, prairie, and eastern deciduous forest, the effects of these changes on native plants and agriculture will be especially dramatic.

To address these urgent concerns, it is appropriate that a Chair in the Origin and Conservation of Plant Diversity be established as soon as possible in the Department of Plant Biology at the University of Minnesota. By helping to establish this position, the Minnesota Native Plant Society will help provide a source of expanding expertise to students, faculty, government, and all those concerned with Minnesota's flora. Students trained in this intellectual environment will be well equipped to help our state, country, and world meet future challenges to plants and agriculture.

Much of the success in the establishment of this Chair depends on the possibility of receiving additional funding from the Minnesota Environment and Natural Resources Trust Fund. Before any money is granted from that source, it must be shown that this project has broad-based community support. It is in this aspect that the Minnesota Native Plant Society can be especially helpful. We are asking the Minnesota Native Plant Society, to launch a campaign amongst its individual members to raise a total of \$10,000 to support the Chair in the Origin and Conservation of Plant Diversity.

Why a Chair for the Origin & Conservation of Plant Diversity?

John Doebley, Associate Professor Dept. of Plant Biology and Director of Herbarium at U of M

The Department of Plant Biology at the University of Minnesota is currently attempting to raise funds for an endowed chair in the area of the origin and conservation of plant diversity. In doing so, the Department has asked for the assistance of the Minnesota Native Plant Society (MNPS). I was asked by Ellen Fuge to briefly outline the purpose of this chair and state how the establishment of the chair could help accomplish the goals of MNPS. I hope that my comments will aid MNPS members in making an informed decision concerning the merits of supporting the proposed chair

The chair is an endowed professorship in the Department of Plant Biology. Once funding is secured, the Department will seek to fill this professorship with a person working in the general area of the origin and conservation of plant diversity. The person will probably be either a systematist, evolutionist, population biologist, population geneticist or ecologist. This person will be an established scholar, recognized internationally as a leader in their field of research. The department will seek a person who has excellent teaching skills and will expect them to offer courses in their area of expertise at both the graduate and undergraduate levels. The department will seek an individual capable of

attracting outstanding graduate students and funding for graduate education. The department will seek an individual capable of providing intellectual leadership in the area of plant evolution and diversity. Depending on the individual hired, they could take a leadership role on issues concerning plant conservation in both Minnesota and the world. With global warming a special concern for Minnesota, intellectual leadership in plant conservation at the University of Minnesota would be highly beneficial.

The extent to which the chair aids MNPS in accomplishing its goals depends largely on the specific individual hired. The chair could be filled by a plant systematist who is involved in floristic studies and has strong interests in conservation biology. I expect such a person would have regular interactions with MNPS. Thus, the chair could clearly make contributions to attaining MNPS's goals of promoting the preservation of the native plants of Minnesota. Alternatively, the chair could be filled by a molecular evolutionist whose interests are more in the origin of diversity and understanding the mechanisms that govern evolution. Such a person would be less likely to be a spokesperson for conservation issues, although they would contribute to the MNPS indirectly via attracting and training students in plant evolution and ecology.

A critical question for MNPS members may be: "What precise type of plant biologist will be hired?" The honest answer is no one knows. Who is hired depends on many factors. Generally, it is easier to attract good candidates in areas in which a department or university is strong and more difficult to attract good candidates in areas of weakness. Major donors (donors providing a considerable majority of the funds) can have significant influence. Ultimately, the decision on hiring will be made collectively by the dean of the College of Biological Sciences, and the head and faculty of the Department of Plant Biology.

In summary, I would say that the establishment of this chair will clearly benefit the University and through it the State. By enhancing the ability of the University to educate students in the area of plant diversity and evolution, I believe that the organizations such as MNPS will also benefit. The extent and nature of the benefit to MNPS will depend very much on who is hired to fill the chair.

Some Reservations on the Endowed Chair

John Moriarty, MNPS Board Member

The Department of Plant Biology has approached the MNPS to help raise money for their new endowed chair on the Origin and Conservation of Plant Diversity. This new chair is an important step for the Department of Plant Biology. But, I feel it might not be as critical or beneficial for the MNPS and our goal of native plant conservation.

Raising \$10,000 will be very difficult for the MNPS and would only be successful once. The ability to raise money for other worthwhile and potentially more important projects in the future could be greatly limited.

We do need to support the Department of Plant Biology, but we should not neglect our responsibility to support native plant conservation efforts of other Minnesota agencies and organizations.

Fire Research Institute

New Journal: In April, a new quarterly, refereed, scientific journal, the *International Journal of Wildland Fire*, devoted solely to issues in wildland fire was announced. The Chief Editor, Canadian ecologist Ross Wein, has assembled an international editorial board with representatives from Australia, Brazil, Canada, France, Germany, South Africa, USA and the USSR. The board is now accepting manuscripts dealing with any issue related to wildland fire science, management or technology. The first issue will be mailed in the fall of 1990. Subscriptions are \$50.00 US. Address questions regarding manuscript submission or subscription to: Journal of Wildland Fire, PO Box 241, Roslyn, WA, USA 98941-0241.

New International Directory of Wildland Fire: *The International Directory of Wildland Fire* contains over 500 pages of names, addresses and telephone numbers. Updated annually, it now includes 4915 managers, 3104 academics, 1162 women in fire, 2434 organizations, 844 vendors and consultants, 1680 educational institutions, 2266 libraries, 177 granting agencies, 451 journals and newsletters involved in research, management or publishing concerning wildland fire. Keywords are included to indicate area of interest. The Directory is \$34.50 in paperback and \$250.00 on disk. The editors are accepting advertisers. Write: Fire Research Institute, (Same address as above.)

New International Bibliography of Wildland Fire: *The International Bibliography of Wildland Fire* contains over 40,000 references to publications concerning all areas of wildland fire including science, management and technology. Articles on urban interface, silviculture, remote sensing, fuels, biomass, air quality, ecology, fire history and more are included. Each entry is keyworded to indicate subject matter and region discussed. The bibliography is updated annually, and available on diskette, the bibliography will be published in June, 1990. The Bibliography is \$60.00 (add \$5.00 in Canada and \$8.00 elsewhere). Diskettes are \$150.00. Write: Fire Research Institute, (Same address as above.)

"Friends of the Fen" Volunteer Day - A Success!

Steve Eggers

The first "Friends of the Fen" volunteer workday on May 19th 1990 was a complete success in spite of the worst possible weather conditions (short of a tornado). Thirteen hardy individuals endured a cold, wind-driven rain to girdle buckthorn as well as aspen, dogwood and willow. These shrubs are invading the calcareous fen plant community found on the southern 20 acres of the 30 acre parcel, which is a Minnesota Department of Natural Resources Scientific and Natural Area (SNA). Without management, these shrubs would overtake the calcareous fen community and shade out its characteristic assemblage of calcium-tolerant grasses, sedges, and forbs, including a disproportionate number of rare, threatened and endangered species.

The prime objective of the workday was to girdle all of the 4 to 5 dozen large buckthorn shrubs within the calcareous fen community. This and more was accomplished as there was time to work on some of the aspen, dogwood, and willows. We expect good results from the girdling; a half dozen buckthorn girdled last year showed no sign of life this year.

Much like prairies, periodic burns are necessary for maintenance of the calcareous fen community. However, one result of the urbanization of the Savage/Burnsville area has been suppression of fire. To my knowledge, the last burn of any size in the 500-acre Savage Fen wetland complex, which includes the SNA, occurred in 1970. Compare this 20-year absence of fire with the statement by a 90-year old resident of the area who said they called this wetland complex "the meadows" and a wildfire typically swept across it most every year. Comparison of aerial photography from the 1940s and 1950s with that of recent years is dramatic with regard to the increase in woody vegetation. Whereas less than 1 percent of the 500 acres was shrub/forested up to the 1960s, today about 40 percent of the complex is dominated by woody vegetation. Ideally, prescribed burns would be the preferred management tool; however, the 30-acre SNA lacks good fire breaks. The next best management tool is to girdle the shrubs. This is labor intensive and led to the idea of forming a volunteer group.

Undoubtedly it will be necessary to follow-up the work done on May 19 with cutting of resprouting buckthorn, and many invading willows and dogwood remain. There is enough management work to be done such that the "Friends of the Fen" could keep busy for the next several years at least. This brings up the idea of making the "Friends of the Fen" workday a biannual event. The volunteer group would not be restricted to the 30-acre SNA. I have contacted Terry Shriner of the Minnesota Valley National Wildlife Refuge, which includes a 26-acre parcel with the Savage Fen wetland complex. He would be happy to have a volunteer group available to do management work on the refuge's parcel of the Savage Fen wetland complex.

Volunteer Opportunities

DEPARTMENT OF NATURAL RESOURCES - The Minnesota Natural Heritage Program seeks volunteers to assist with the following tasks:

- processing herbarium specimens
- entry of rare plant monitoring data
- statistical analysis of rare plant monitoring data (experience required)
- review of plant distribution maps
- review of herbarium specimens
- telephoning other volunteers, landowners etc.

To volunteer call Nancy Sather at

UNIVERSITY OF MINNESOTA (St. Paul campus) - The UM Herbarium seeks volunteers to assist in the curation of museum specimens. Duties may include mounting dried, pressed plants onto archival paper, filing specimens into storage cabinets, mapping collection localities, arranging fungal specimens, or typing labels for lichen specimens. Sorry, no evening or weekend opportunities. For more information call Dr. Anita Cholewa,

MAPLEWOOD NATURE CENTER (Maplewood) - There are opportunities to act as a trail guide, building receptionist, puppeteer, or outreach speaker. You can also become involved in trail maintenance or creative displays. No formal background is necessary, but an enthusiasm and desire to learn about the natural world is essential. For more information call the Maplewood Nature Center, 612-738-9383.

THE NATURE CONSERVANCY: No Dormancy for Volunteers - The Nature Conservancy's Ottawa Bluffs preserve was the scene of seed gathering last August and September-- Indian grass, big and little bluestem, lead plants, gentians, prairie clover-- all collected by an active group of committed Chapter volunteers. An introduction to restoration techniques at the site of Prairie Restorations, owned and managed by John and Ron Bowen of Princeton, "sowed the seeds" of enthusiasm, so to speak! The native prairie seeds will be used to restore natural areas on Conservancy land at Ottawa Bluffs. If you would like to participate please read on...

Prairie Plant Growers Needed - The Nature Conservancy's Minnesota Chapter needs volunteers who are willing to take seeds collected this fall and grow them for planting in the spring. The plants are needed for the Ottawa Bluffs Preserve near Mankato which has several badly eroded areas. Before transporting the seeds to Ottawa Bluffs in early May, The Minnesota Chapter volunteer crew will provide you with clean, stratified seeds that are ready to germinate, and information on special requirements for growing the particular species as available.

You will be responsible for providing soil, flats, and growlights. The seed should be planted in flats in early March, and later transplanted to individual containers. When the seedlings are ready to plant, bring them to the office. If you can volunteer for this project please WRITE to:

Prairie Plant Growers,
The Nature Conservancy,
1313 SE Fifth Street, Box 10,
Minneapolis, MN 55414

Note: Specify how many flats of seed you are willing to grow!

Native Plant Watch: Two Steps Forward and One Step Backwards

Bob Jacobson

Wildflower Routes Focus On State's Native Beauty

Contrasting with blue prairie sky and seamless green fields of corn and soybeans, multi-hued wildflowers thrive along Trunk Highway (T.H.) 9 between Breckenridge and Benson. Flowers such as blazingstar, goldenrod, common ox-eye and Maximillian's sunflower lend color and texture to the traveler's experience along this road, one of six designated by the Minnesota Department of Transportation (Mn/DOT) as a wildflower route.

In addition to the T.H.9 section, Mn/DOT established wildflower routes on T.H.11 from Baudette to Greenbush, T.H.10 from Becker to St. Cloud, T.H.218 from Owatonna to Lansing, T.H.56 from Rose Creek to LeRoy and T.H.212 from Olivia to Stewart. The 250 miles of wildflower routes represent efforts by the Department of Natural Resources (DNR), the University of Minnesota, the Native Plant Society, Mn/DOT and other organizations to preserve native wildflowers and expand their range along state highways.

And there is a bonus for Mn/DOT—lower costs for roadside maintenance and reduced use of chemical herbicides. "The program is a win/win situation for Mn/DOT," said Leo Holm, Materials and Research. "It can cut maintenance costs, reduce the use of chemicals and create a nice appearing roadside." Holm added that the program earned good reviews from DNR, district maintenance employees and communities on the wildflower routes. Breckenridge City Clerk Blaine Hill also praised the program. "It's an excellent idea," he said. "It's important to save the natural beauty of the prairie lands."

The article above appeared in the October 1990 issue of the Mn/DOT Express, a monthly publication for Department of Transportation employees. A companion article focussed on prescribed burn schools sponsored by Mn/DOT and DNR which trained state employees in how to safely conduct controlled burns to manage roadside prairie remnants.

It is exciting to realize that **finally** native plants are getting recognized as being something other than roadside weeds. This recognition has been slow to come, and even though progress is being made in preserving remnants of native prairie on roadsides, there is still a long way to go.

Efforts at preservation do not come easy. This summer, at the same time that five of the above wildflower routes were being designated, 12 miles of very good quality prairie along highway 60 in southwestern Minnesota were being bulldozed during road construction. The destruction happened despite genuine efforts by the DNR and Mn/DOT to protect the remnant. The culprit, a gung-ho contractor and poor communication both between, and within, Mn/DOT and DNR. A very hard lesson was learned. Efforts to communicate better are being made as a result and the rest of the remnant should be preserved. Sometimes it seems that for every two steps that are made in a positive direction we take a step backwards as well. It can be very frustrating for the individuals involved who are working hard to preserve what few remnants that are left. Of course, the real losers in the whole scheme of things are the native plants and the wildlife that depends on them.

MNPS Board of Directors

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Cole Burrell

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MNPS Renewal Form:

Fill out this form and mail to:

Minnesota Native Plant Society • 220 Bio SCI Center • U of M • St Paul , MN 55108

___ Indiv.: \$10

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___ Institution: \$20

___ Student/Senior: \$8

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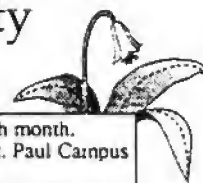
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Donations made to MNPS are tax deductible.

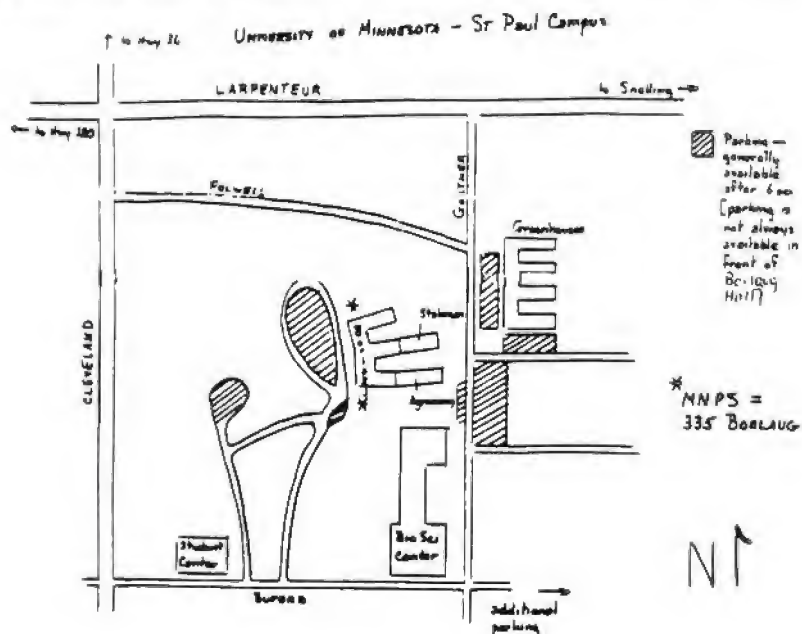
Minnesota Plant Press may be obtained through membership in the Minnesota Native Plant Society. The newsletter is distributed 3 times each year. Items of interest for inclusion in the newsletter may be submitted by anyone but must be typed and double spaced. The editors reserve the right to edit for grammar and clarity.



Minnesota Native Plant Society



All meetings are open to the public and take place on the first Wednesday of each month. They begin promptly at 7:30pm in 335 Borlaug Hall on the University of Minnesota St. Paul Campus. If you have suggestions regarding future topics or speakers, please call Don Knutson.



Minnesota Native Plant Society
Biological Sciences Center
University of Minnesota
St. Paul, MN 55108



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Vol. 10:2 Newsletter Of The Minnesota Native Plant Society, Winter 1991

Upcoming Monthly Meetings

- February - Restoration of the American Chestnut in Minnesota -- Charles Burnham
March - Vegetation of Kittson County, Minnesota's Northwest Frontier-- Robert Dana
April - How Volunteers Help The Natural Heritage Program -- Nancy Sather
May - Nature photography show, field trip preview, plant sale

Rare Beauty

Gordon Yalch - *The Nature Conservancy*

Of Minnesota's rare native plants, none can match the magic of *Platanthera praeclara* the white fringed prairie orchid. Starting out as two rarely noticed basal leaves, this orchid can send up a flowered spike reaching a height of three feet. With up to 17 per spike, the white flowers appear to be gracefully carved out of wax. This orchid can be found in wet draws and drainages in western and southern Minnesota. An associated plant often used as an indicator of where to look is *Cicuta maculata* the much more common water hemlock.

July of 1990 proved to be quite exciting for the Minnesota Chapter of The Nature Conservancy (TNC). Searches for the white fringed prairie orchid were done on four of TNC's prairie preserves. Volunteers gathered at the Western Preserves Office near Glyndon, Minnesota for a day of long walks on several prairies. Searching was carried out in areas of the Red River Valley for which there are historical records as well as known existing populations of the white fringed prairie orchid. In addition, a newly acquired tract was searched for rare plants, but only two populations of *Cypripedium candidum*, the small white lady's slipper, were found blooming. There is still some hope for this tract because much of it had been mowed for hay until the spring of 1990. It is possible that the orchid may still be there but hasn't yet recovered enough from the repeated mowing to bloom.

A range of flowering conditions occurred in the populations of white fringed prairie orchids located during this survey. Some known populations had no flowering plants and

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Editors Notes: Bob Jacobson & Sarah Vest

Oops! In the last newsletter, the list of plants on page 3 should not be used in small gardens because they spread rapidly and may outcompete the other plants in your garden.

The next newsletter will be coming out in May, if you would like to submit an article please get it to Sarah at the address below by April 1st.

Sarah Vest

Announcements

- **Update on the U of M Endowed Chair** -- The Minnesota Native Plant Society board members voted to support the fund drive for the Endowed Chair in the Origin and Conservation of Plant Diversity (see fall 1990 newsletter for background information). To get the ball rolling, an anonymous challenge grant of \$500 was pledged. The MNPS board is adding another \$500. Our goal is to attract contributions from the membership to meet this \$1,000 challenge at a ratio of 3 to 1 and raise a total of \$4,000 for the Chair. You will be receiving a brochure describing the Chair. Should you decide to contribute, please use the envelope provided with the brochure. In this way, we can keep track of contributions coming from the MNPS membership.
- **Thank You** -- for all of the awesome refreshments that people have been bringing to the monthly MNPS meetings. Most of us can't even dream of matching these performances but let's not be shy. If you are interested in bringing refreshments, sign up at the next meeting (there are several opportunities left) and contribute to the conviviality we all enjoy. We need one refreshment "organizer" to sign up for each meeting. It is this person's responsibility to check with the previous month's organizer to be sure there are enough cups, to contact the other cookie providers and to set up the hot water pot.
- **Membership Committee Sought** -- The Minnesota Native Plant Society is growing. Volunteers are needed to do the following:
 1. Keep the membership roster up to date
 2. Send a welcome letter to new members
 3. Receive new and renewal memberships
 4. Report periodically to the board
 5. Help promote membership in the society

Thanks to Ted Tonkinson who has already volunteered. Let's get some additional members for this committee! It's easy! It's fun! It's the perfect way to get to know other members. Interested persons should contact Ellen Fuge or Nancy Sather.

• **Minnesota Flora** -- The long awaited publication of "Atlas of the Flora of Minnesota" by Ownbey, G.B. and Morley, T., 1991; will be here in March. ONLY 750 hard bound copies will be printed. The Minnesota Native Plant Society is offering this book at the reduced price of \$30.00 (from \$39.95) to MNPS members only. If you are interested in buying a book and taking advantage of this offer, please fill out the form at the end of this newsletter and send by February 27 to:

Ellen Fuge

• **Fourth Annual Minnesota Native Plant Society Symposium** -- To be held April 6, 1991. Volunteers are needed to help serve on several committees. Committee members are listed below. If you would like to volunteer, please contact the chair of the committee on which you would like to serve. The symposium title is still taking shape. The general subject will be centered around why it is important to use native plants for landscaping and the ethics and environmental concerns for the appropriate use of natives. Join in this creative and satisfying process, get to know your fellow members, meet the experts in the field.

Symposium Chrm: Cole Burrell

Ted Tonkinson

Esther McLaughlin

House/Hospitality: Ruth Phipps (Chrm)

Judy Kenney

Becky Schriber

John Anderson

Refreshments: May Wright (Chrm)

Heidi Schwabacher

Laura-Leigh Madsen

Henrietta Miller

Carmen Converse

Publicity: Ellen Fuge (Chrm)

Don Knutson

• **Summary of MNPS General Meetings** -- At the October 3 meeting, Hannah Dunevitz gave a colorful slide presentation about her work with the Minnesota County Biological Survey in Rice and Goodhue counties during the 1990 field season. The highlight of her field work and her presentation to the Society was the rediscovery of *Napaea dioica*, the glade mallow. See "Glade Mallow Relocated" by Hannah Dunevitz page 5 of this newsletter.

On the evening of November 6, Bonnie Harper talked about the establishment of the Midwest branch of the Wildflower Research Center housed in the Minnesota Landscape Arboretum. The center is just getting started in Minnesota. It represents several midwestern states and Bonnie is just developing the agenda. Those members with ideas for projects might want to contact Bonnie with their ideas. Her phone number is

Jan Green addressed the general meeting of the Society on December 5. She is on the advisory committee for the generic environmental impact statement. This committee has been mandated to address the complex issues surrounding the proposed accelerated harvest of Minnesota's timberlands, including such controversial issues as soil erosion, habitat modification, old growth forest dependant species, road development, and others.

On January 2nd, the Open Forum was a great success. Modeled on an impromptu discussion session at one of last years meetings, this gathering was orchestrated and directed by John Moriarty. May Wright, Welby Smith, Cole Burrell and Roy Robison were there to entertain questions from the audience. Several other experts were discovered in the crowd. There were questions raised about rabbit deterrents, city ordinances regarding natural plantings, the legal status of horticultural varieties of purple loosestrife, the myths of orchid propagation, the fate of boulevard trees, and a plethora of other interesting topics.

- **National Wildflower Research Center** -- A Midwest Regional office of the National Wildflower Research Center opened last summer. The office will serve Minnesota, Iowa, Illinois, Indiana, Michigan, Ohio, Wisconsin, Missouri, Oklahoma, Kansas, Nebraska, North Dakota and South Dakota. The primary function of the office will be to facilitate information exchange about wildflowers and native plants in the Midwest. However, it will also begin establishing a slide and book library, developing landscaping fact sheets for the public and designing applied research projects and demonstration plantings. A regional conference is being planned for next summer. The Center is located at the Landscape Arboretum in Chanhassen and can be reached at

(*Rare Beauty, continued from pg. 1*)

only the basal leaves could be found. Six populations were re-marked or were new recordings and ranged in number of flowering plants from one up to 2,800. That's right, 2,800 flowering plants in a single population! But with only three people doing the counting this is a rough estimate. This huge population straddles a drainage ditch. There is no sign that the orchids have suffered any negative effects from chemicals that come through the ditch in water from farm fields upstream, and it is hoped that they never do. The TNC Director of Preserve Stewardship, Brian Winter, used up a roll of film documenting this vast find.

During the fall, firebreaks were mowed in the areas that had been surveyed to prepare for prescribed burns planned for the spring of 1991. At the same time, several of these populations were revisited and seed pods were found on plants scattered throughout the site. Hopefully many new plants will become established and there will be even more orchids flowering in some future summer.

To put a final touch on such a successful day, Brian happened to glance out of the window while driving back to the office and exclaimed, "Hey! Weren't those orchids back there?" After turning around and driving back, sure enough, there they were. In a small hayed field next to a farm house there were three flowering plants. Brian recorded the location and went to work to try and get the landowner to enroll this land into protected status. If any one finds new sites for *Platanthera praeclara* or any other rare plant, they should contact the nearest DNR or TNC office or Lisa Mueller, Endangered Species Specialist for the Minnesota Department of Agriculture at



White tringed prairie orchid (*Platanthera praeclara*)

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Glade Mallow Relocated

Hannah Dunevitz, Plant Ecologist - Minnesota County Biological Survey

One of the more exciting discoveries during Minnesota's 1990 field season was the rediscovery of the state endangered plant-glade mallow, *Napaea dioica*. It was found during the Minnesota County Biological Survey (MCBS) of southeastern Minnesota's Goodhue County. The MCBS began comprehensive inventories of Rice and Goodhue Counties in 1990. Plant and animal ecologists visited potential sites looking for rare plants and animals and documenting occurrences of natural communities in these counties. The inventory for these two counties will be completed in 1991.

One of the plants the biologists were looking for was glade mallow. Confined to a narrow band of habitat stretching from Ohio, west to southeastern Minnesota, the plant was probably uncommon even before European settlement.

Glade mallow is rare because of the conversion of floodplain habitat to agricultural land. In southeastern Minnesota it occurs in alluvial meadows and in floodplain forest openings along major tributaries of the Mississippi River. A very distinctive plant, glade mallow is easily recognized by its tall stature, up to about 2 meters tall, and its serrate, palmately lobed leaves. The small

flowers are arranged in a panicle and have 5 white petals. The globular fruits are green in mid summer, eventually darkening to a bluish black and splitting into many separate one seeded partitions. The plant is the only dioecious species in the Malvaceae family that is native to the Western Hemisphere, and has no close relatives living today. It is thought to be quite an old species.

Before 1990, there were only three recently confirmed occurrences of glade mallow in the state, none of these from Goodhue County. There were two older records in Goodhue County, the most recent from a 1942 collection. One site in Goodhue County that had been selected from aerial photographs as an area having natural vegetation was a large forested



Glade mallow (*Napaea dioica*)

© 1988 State of MN DNR, illustration by Vera Ming Wong

tract of about 500 acres along the North Fork of the Zumbro River. While searching the floodplain adjacent to the river, the plant ecologist working in the area came upon several glade mallow plants. A subsequent canoe trip along that portion of the river revealed that the plant was growing in scattered patches along a three mile stretch of the river, sometimes clinging to the bank next to corn fields or roads. Later in the season, the plant was also relocated in a former collection site near the town of Pine Island. Additional potential sites will be searched in 1991.

More "Friends of The Fen" Volunteer Work

Steve Eggers

On September 8, 1990, another volunteer work day was held at the Savage Fen Scientific and Natural Area (SNA). The first volunteer work day was held on May 19th and the results were reported in Vol. 10:1 of the Plant Press. As opposed to the first work day weather conditions were ideal and about a dozen people, members of the Native Plant Society and/or The Nature Conservancy, arrived ready to do some "hands on" management work.

First, a botanical tour of the calcareous fen plant community was conducted noting the characteristic calcium-tolerant species of this rare plant community. We observed lesser fringed gentian (*Gentianopsis procera*), grass-of-Parnassus (*Parnassia glauca*), Riddell's goldenrod (*Solidago riddellii*), shrubby cinquefoil (*Potentilla fruticosa*) and other species in bloom. Three of the rare members of the sedge family (listed as threatened or of special concern in Minnesota) were also observed; twig-rush (*Cladium mariscoides*), whorled nut-rush (*Scleria verticillata*) and fen beak-rush (*Eleocharis rostellata*). The field trip happened to coincide with the best time of year to observe the most conspicuous field characteristic of the whorled nut-rush; its bony-white, stone-like achenes.

We inspected the buckthorn that had been girdled in May. Those smaller than three inches in diameter had lost all leaves and showed no signs of life. Larger buckthorn still retained their leaves, although about 50% of the leaves had yellowed. These larger buckthorn had produced a heavy fruit crop. Apparently, there were enough energy reserves in the upper part of the shrubs to retain the leaves and bear fruit. One of the participants stated that producing heavy fruit crop is a survival mechanism often employed by dying fruit trees and shrubs. Hopefully, this was the "last gasp" of the buckthorn. Future control will then consist of cutting buckthorn seedlings, a much easier task than tackling the girdling of dozens of large buckthorn shrubs.

After confirming that all the buckthorn in the southern 20 acres of the SNA had been effectively girdled, the group began cutting back the large willow and dogwood clumps. Here the numerous small stems made girdling impractical so the stems were cut. Some large willows were also cut. A comment was made that this isn't going to have any benefits because the willow and dogwood will simply resprout. My response was that the cutting should be viewed as a "setback" to the shrubs. Even if a program of prescribed burning could be initiated, the shrubs would not be eliminated; rather, they would be set back by each burn. Review of aerial photography shows how the clumps have progressively increased in aerial extent over the last 20 years with the absence of fire. Cutting the clumps will permit full sunlight in areas that have been shaded for as long as two decades. Yes, it will be necessary to cut the resprouting shrubs every few years, but the benefits of greatly reducing shading

should make this effort worthwhile. It will be exciting to see how the sun-loving species of the calcareous fen respond now that they are no longer suppressed.

One result of our industrious cutting was that a number of brush piles were left within the fen. Obviously it would be counterproductive to leave the brush piles as they would be "shading" the fen vegetation as well. On the 18th of November, Ellen Fuge and I dragged the brush to the edge of the upland old field. To give you an idea of how much brush was cut by volunteers, it took 6 person-hours to drag the brush the 100 to 300 feet to the old field.

"Exhausted" would be an accurate description of Ellen and I afterwards.

Another volunteer work day is planned for October 19, 1991. Participants will be limited to 15 and reservations are required. The Nature Conservancy is handling arrangements - contact them at 379-2134 to make a reservation.

Wildflower Gardening Notes

May Wright

Now is a good time to plan your wildflower garden. Soon the catalogs will arrive and plants or seeds can be ordered. Growing wildflowers from seed is not for everyone. It usually takes more time from seed to bloom than with cultivated plants. It takes time to transplant and care for seedlings just when other garden chores need attention, but it is rewarding to see the results. It is also an inexpensive way to obtain a good number of plants or to get some special ones. Here are a few suggestions.

The germination of most northern species is benefited by a previous cold period. Seeds obtained in February or early March can still get a couple of months of cold outdoors. Plant them in seed pans or pots (at least 2" deep) and put them in a coldframe. Covering each with a clear plastic bag keeps the surface moist until germination. They should be in light but not direct sun. A sterile soil mix of loam, sphagnum peat and coarse sand, or vermiculite can be used. Soil should not be packed, it should but be loose enough to promote good root growth. If a cold frame is not available, the pots can be put in a container and covered with plastic or glass and set in a shaded spot outdoors. Some screening may be laid over it to keep animals from disturbing it.

A similar effect of cold temperature may be obtained in less time by putting the seeds in a covered container of moist peat and sand and setting it in the refrigerator at about 40°F for 6-8 weeks for most seeds. If there are many seeds they can be layered in the medium. A few species take less time. Lupine (*Lupinus perennis*) needs only a short time of about 10 days. If left longer it germinates in the refrigerator.

After the period of cold treatment, the seeds may be spread in their permanent site or potted up for transplanting later. Some seeds, especially those of prairie plants, need only dry cold instead of moist. They can be put in the refrigerator in envelopes or in containers with dry sand. With small seeds, this sand can be spread later with the seeds. The sand helps to sow them more evenly.

Most seed sources store their seeds at cool temperatures. A few store them at the 40°F temperature so that they are ready to be planted when they arrive. Inquiries can be made about this. The following are a few colorful species that can be grown quite readily after the cold-moist or cold-dry seed treatment. They are arranged by time of bloom.

<u>Early spring:</u>	Virginia Bluebells (<i>Mertensia virginica</i>) - meadow, shade, spring sun. <i>Cold-moist.</i>
<u>Spring:</u>	Birds'-foot Violet (<i>Viola pedata</i>) - prairie, sun. <i>Cold-dry.</i>
<u>Late spring:</u>	Wild Columbine (<i>Aquilegia canadensis</i>) - wood's edge, partial shade. <i>Cold-moist</i> Light needed for germination.
<u>Early summer:</u>	Butterfly Weed (<i>Asclepias tuberosa</i>) - prairie, sun. <i>Cold-dry.</i>
<u>Summer:</u>	Cardinal Flower (<i>Lobelia cardinalis</i>) - wood's edge, partial shade. <i>Cold-moist.</i> Small seeds, light needed for germination. Put seeds on layer of sieved peat over the potting soil.
	Blue Lobelia (<i>Lobelia siphilitica</i>) - woods, partial shade. <i>Cold-moist.</i>
	Harebell (<i>Campanula rotundifolia</i>) - meadows & rocky banks, sun. <i>Cold-moist.</i>
	Prairie Larkspur (<i>Delphinium virens</i>) - dry prairie, sun. <i>Cold-dry.</i>
	June Grass (<i>Koeleria cristata</i>) - prairie, sun. <i>Cold-dry.</i>
<u>Fall:</u>	New England Aster (<i>Aster novae-angliae</i>) - meadows, sun, partial shade. <i>Cold-moist.</i>
	Little Bluestem (<i>Schizachyrium scoparium</i>) - prairie, sun. <i>Cold-dry.</i>

Wildflower Sources in Minnesota and Adjacent Areas

Plants = (P) & Seeds = (S)

<u>Name & Address</u>	<u>Original Source of Material</u>
American Rock Garden Society (S) 15 Fairmead Road Darien, CT 06820	Some from MN (via seed exchange)
Boehlke's Woodland Gardens (P) W 140 N 10829 Country Aire Road Germantown, WI 53022	Wisconsin
Ferndale Garden Center (P) P.O. Box 218 Askov, MN 55704	Minnesota
Landscape Alternatives, Inc.(P,S) 1465 N Pascal St. St. Paul, MN 55108	Many from Twin Cities area
Little Valley Farm (P,S) R.R. 1 Box 287 Richland Center, WI 53581	Wisconsin
Midwest Wildflowers (S) Box 64 Rocktown, IL 61072 MN	Illinois
Landscape Arboretum (P) Chanhassen, MN 55317	Minnesota & others
MN Native Plant Society (P,S) 220 Bio. Sci. Center University of Minnesota St. Paul, MN 55108	Many from Minnesota Fall Seed Exchange; Spring Plant Sale

Name & AddressOriginal Source of Material

Orchid Gardens (P)
2232 139th Ave. NW
Andover, MN 55307

Minnesota, especially northern part

Prairie Moon Nursery (P,S)
Route 3 Box 163
Winona, MN 55987

Driftless area of MN and adjacent areas

Prairie Nursery (P,S)
P.O. Box 365
Westfield, WI 53964

Wisconsin & others

Prairie Restoration (P,S)
P.O. Box 327
Princeton, MN 55371

Minnesota

Prairie Ridge Nursery (P,S)
R.R. 2, 9738 Overland Rd
Mt. Horeb, WI 53572-2822

Wisconsin

Prairie Seed Source (S)
P.O. Box 83
North Lake, WI 53064-0083

Southern Wisconsin

Rice Creek Gardens, Inc. (P)
11506 Highway 65
Blaine, MN 55434

Minnesota, Michigan & others

List Compiled by May Wright

Upcoming Seminars

Gardening for a Greener Planet, Maplewood Nature Center 612-738-9383, Tuesdays, March 5 through March 26, 7:30 & 9:00 p.m.

March 5 - "Landscaping for Energy Savings". Doug Owens-Pike of Evergreen Energyscapes will focus on landscaping techniques for heating and cooling the home, and use of native plants for low maintenance and resistance to drought.

March 12 - "Designing with Native Plants". Cole Burrell, University of MN, will show you how to design a wild flower garden emphasizing color, form, and texture.

March 19 - "Gardening for Butterflies". Mary Risdall, Federated Garden Clubs, will speak on planting a flower garden to attract butterflies.

March 26 - "Landscaping for Wildlife". Carrol Henderson, DNR Nongame Program, will show you how to attract wildlife to your own backyard.

Fee: \$3.00/session or \$10.00 Prepaid Registration. Deadline is Friday before each session.

Volunteer Opportunities

- **Department of Natural Resources** - Volunteers needed for rare plant searches. Now is the time to call the DNR at _____ to indicate your interest in searching for rare plants next summer. Prospective volunteers will be sent a volunteer application and added to the volunteer mailing list for a mid-March mailing. The DNR has opportunities for volunteers to search for and monitor 3 federally listed plants: The Minnesota Dwarf Trout Lily in Rice and Goodhue Counties in late April and early May, the White Fringed Prairie Orchid in northwestern Minnesota in late June and/or early July, and the Prairie Bush Clover in southwestern and southeastern Minnesota in August and early September.
 - **Department of Agriculture** - Volunteers are needed to assist the Department of Agriculture in documenting the exact location of Dwarf Trout Lilies at presently known sites. Contact Lisa Mueller at _____.
 - **The Nature Conservancy** - Volunteers who wish to assist The Nature Conservancy with documenting and monitoring populations of White Fringed Prairie Orchids should contact Brian Winter at _____.
-

Native Plant Watch....

The Minnesota Department of Agriculture's Endangered Species Program

Lisa Mueller, Endangered Species Specialist - Minnesota Department of Agriculture

By virtue of the Federal Endangered Species Act, the federal government is required to mitigate any risk that its actions pose to federally listed species of plants and animals. One of the "actions" included under the provisions of that Act is the registration of all pesticides by the U.S. Environmental Protection Agency (EPA).

Since the early 1980's, EPA has been grappling with the development of a comprehensive endangered species protection program. The current proposed program would involve the re-labeling of all pesticides determined by EPA, in consultation with the U.S. Fish and Wildlife Service, to pose "jeopardy" to an endangered species. The label statement would refer pesticide users to a county specific bulletin which would identify those species that could be negatively affected by the use of a particular pesticide within the county. The bulletins would include a range map and a brief habitat description for the identified species.

The EPA proposed program has received negative reviews from both the "regulated community" and endangered species resource managers, who have identified a number of shortcomings with the federal approach; not the least of which is the fear that by providing the exact locations of endangered plant populations to the general public, intentional destruction

may occur. In response to the opposition, the EPA gave "the states" the opportunity to develop their own pesticide protection programs in 1988. The Minnesota Department of Agriculture (MDA) welcomed the opportunity to develop a program more uniquely tailored to the needs of the federally listed species which occur in our state.

There are eight Federally listed species which occur in Minnesota; three of which are native plants. The list includes: the Gray Wolf, the American Peregrine Falcon, the Bald Eagle, the Piping Plover, the Higgin's Eye Pearly Mussel, the Western Prairie Fringed Orchid, the Prairie Bush Clover and, of course, the Minnesota Dwarf Trout Lily.

At present, the MDA program deals almost exclusively with the plant species, because they are stationary and their "owners" can be identified. Private landowners who own the listed orchid, clover or lily are asked to enter into voluntary Protection Agreements which acknowledge their commitment to protect the species from negative affects due to pesticide exposure. A landowner's signature on the Agreement indicates that they are willing to comply with the provisions of a Pesticide Practice Plan which is prepared by MDA for each listed plant owner. Pesticide use restrictions identified in the Plan typically involve the establishment of "buffer zones" of varying widths, depending primarily on the method of application used by the producer (i.e., aerial applications are more closely monitored than applications of granular herbicides, due to the greater potential risk for off target exposure which they pose).

To date the program has shown an admirable "success" rate with a majority of Minnesota's federally listed plant populations receiving protection through the Agreements. If you would like more information about MDA's Endangered Species Protection Program, please contact Lisa Mueller at .

MNPS Board of Directors

President: Nancy Sather

Board Members:

Cole Burrell

Vice President: Ellen Fuge

Robin Fox

Don Knutson

Secretary: Pat Ryan

John Moriarty

Treasurer: Harriet Mason

Elizabeth Roddy

Order form for Ownbey & Morley, 1991. "Atlas of the Flora of Minnesota"

MNPS MEMBERS ONLY

Name _____
Address _____

Phone Number (include area code) _____

Number of books ordered _____

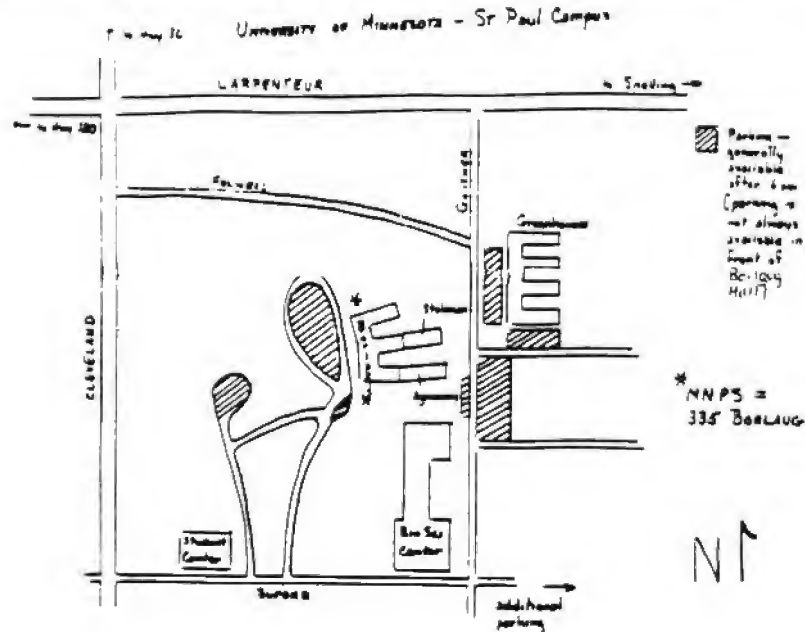
Send by February 27 to:

Ellen Fuge
DNR SNA Program
Box 7, 500 Lafayette Rd
St. Paul, MN 55155-4007

Minnesota Native Plant Society



All meetings are open to the public and take place on the first Wednesday of each month. They begin promptly at 7:30pm in 335 Borlaug Hall on the University of Minnesota St. Paul Campus. If you have suggestions regarding future topics or speakers, please call Don Knutson.



Minnesota Native Plant Society
220 Biological Sciences Center
University of Minnesota
St. Paul, MN 55108

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Minnesota Plant Press

Vol. 10:3 Newsletter Of The Minnesota Native Plant Society, Spring 1991

Upcoming Monthly Meetings

May - Nature photography show, field trip preview, plant sale

Creating a Picture Perfect Wildflower Garden

Goodman Larson

In the winter I enjoy cross country skiing and carry my camera to capture the beauty of a wooded trail or a shaggy cattail almost smothered by a drift of sparkling snow. As the days grow longer and weather milder my thoughts project to more colorful photographic subjects that will soon be emerging through a bed of leaves in our wooded back yard.

By mid April the snow white flowers of the bloodroot should be at their best. What photographer can resist kneeling down to capture on film these 8-petaled beauties? We have a dozen groups of bloodroot scattered among the naked oak trees. Less conspicuous but even more photogenic are the hepaticas with several dozen light blue blooms on each plant. Everywhere there is wild ginger pushing aside the leaves and exposing their hairy heart-shaped leaves. On the ground at the base of each plant is an unusual brown bellshaped fleshy flower which is a real challenge to a photographer with a macro lense.

By early May, large-flowered bellwort and trout lily have added their beauty and grace to the woodland environment. Later in May several species of *trillium*, wild blue phlox, *clintonia*, blue bead lily, and yellow lady-slippers will be in full bloom, while the jack-in-the-pulpit and ferns are emerging. Each hour and each day the character of the woodland garden changes and there are numerous opportunities to photograph wild plants in a natural setting.

Only ten years ago, what is now a natural woodland wild flower garden was part of our lawn. The sparse and weedy grass had to be mowed and the leaves had to be raked and carted off. Here is my recipe for creating a wild flower environment of your own:

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Wildflower Garden continued on pg. 4

Editors Notes: Bob Jacobson & Sarah Vest

- The Society's Board of Directors is interested in receiving input from the membership on a number of issues such as topics presented at the general meetings, the formation of outstate chapters, activities the Society should be involved in, and the newsletter. A survey will be mailed out to the membership this spring. Please take time to fill out and return the survey. **YOUR INPUT IN THE SOCIETY'S BUSINESS IS IMPORTANT!**
- The next newsletter is scheduled to come out in the fall. We need articles, so if you would like to submit one please do so. The newsletter is produced on an Apple Macintosh computer and we ask that long articles be submitted on disk to save us typing time. We have the capability of translating IBM (DOS) formatted files from 3.5 inch disks. However, if you submit an article on a DOS formatted disk, please do so as a text or ASCII file that is unformatted. If you have any questions on how to submit articles please contact Bob Jacobson
- The newsletter is now being mailed out via bulk mail to save money, so if you have noticed that it is slow in arriving that is why.

Note From Your President

In addition to the newsletter, a questionnaire will be mailed to the membership this spring. Please also take this opportunity to give us feedback on the Society. We want the Society to be meaningful for all its members, whether or not they are able to attend meetings, but in order to do this we need to know what the members want from the Society and what they have to contribute. Perhaps it would be helpful for members to be reminded of the present institutional structure of the Society and the scope of our activities. In addition to our eight monthly meetings, held from October to May, we sponsor an annual day-long symposium, a number of summer field trips, annual seed and plant exchanges, and an annual nature photography show. We have a Conservation Committee and have occasionally provided expert testimony at public hearings, written letters in support of or opposition to public issues, and engaged in one lawsuit in defense of a federally endangered plant. Topics for the monthly speakers and Symposium are based on the Board's best guess at member's interests. Our guess is based on the fact that our membership is a mixture of wildflower lovers, gardeners, horticulturists, natural resource professionals, conservationists, and professional botanists from all parts of Minnesota as well as a few out-of-state members.

The Minnesota Native Plant Society is a completely volunteer organization. Although we use the university Department of Plant Biology office as our official mailing address no services are provided by the Department itself. Our membership and mailing list is maintained by volunteers. The Board, newsletter editors, field trip organizers, providers of refreshment, presenters, symposium organizers, seed exchange coordinators and publicity committee are all members who volunteer their time and energy. Of our 230 members a core of about 25 active members are doing almost all this work! The society is a nonprofit organization, and as such, is ruled by a set of bylaws that mandate an annual meeting of the general membership to elect Board members and hear an annual Treasurer's report. The officers of the Board are elected by the Board. It has been our experience for several years that the nominating committee is having

an increasingly difficult time securing members willing to serve on the Board. The Board is comprised of 9 members, each serving a 3 year term. We make an effort to solicit Board participation from all our various constituencies, including general members, horticulturists, resource professionals, academic members and gardeners, as well as members from both within and outside the Twin Cities.

Although it may seem very undemocratic, we have chosen the route of presenting a slate of the same size as the number of vacancies because we are simply unable to find enough people willing to serve on the Board in order to have meaningful contested elections for Board members. The one time in recent history when we did have a contested election the loser was approached the following year and begged to run again because no one else could be found to run. Our slate of officers is filled the same way. We have to beg Board members to take positions as officers. If you are interested in serving on the Society's governing body, please make yourself known to us, so we can get you involved. In some cases there may be a lag of a year or so in following up on your interest in Board membership, because of our attempts to balance Board membership. For example, at the present time we are heavy on agency representatives on the Board and would like to encourage members of the academic community and general members to come forward to serve on the Board.

We need a broader base of active members. We need you to suggest activities you would like to see, newsletter changes, speakers, field trips. Come to Board meetings to share your ideas. We need your leadership. We desperately need a volunteer coordinator, membership committee, field trip leaders, potential Board members, refreshment organizer, publicity chairperson and someone to sit at booths at public events. Board meetings are held the first Wednesday of the month, immediately preceding Plant Society meetings, starting at 6 PM in the University of Minnesota's St. Paul Campus Student Center cafeteria. These meetings are open to all members.

Announcements

- REMINDER: The MNPS publication, "Guide to Spring Wild Flowers in the Twin City Region", is available and the perfect time of year to use it is here! This pamphlet will lead you to a selection of prime locations around the cities where the exquisite array of spring ephemerals can be enjoyed. Send \$2 (\$1 for the pamphlet, \$1 for postage and handling) to:

Marcie O'Connor

- "Atlas of the Flora of Minnesota", Ownbey, G. and T. Morley, 1991, announced delivery date was April 15, 1991. We anticipate having them available at the May 6 meeting. Both dates follow the writing of this notice. If you did not pick up the books you ordered through the MNPS at the May meeting, contact Ellen Fuge, and she will arrange for delivery. There will be an additional charge for postage and handling if it is necessary to mail the books to you.

- MYCOLOGICAL SOCIETY: The Minnesota Mycological Society would like to extend an invitation to the members of the Minnesota Native Plant Society for a special evening on Friday, May 17th, at 7:00 PM at the University of Minnesota St Paul Campus, Room 335 Borlaug Hall. Roger Phillips, author of Mushrooms and Other Fungi of Great Britain and Europe, Wild Food,

and The Photographic Guide to Identify Common and Important Mushrooms, will present his latest book, Mushrooms of North America. Roger's presentation will include identification, history, mystery and medicine, and the future of mycology including the role of the amateur. Those attending will have the opportunity to purchase Roger's book at a reduced price and have it autographed. Doors will open at 6:30 PM.

Summary Of Guest Presentations At The General Meetings

Ellen Fuge

The scheduled speaker for the February meeting, Dr. Charles Burnham, was unable to give his presentation on the American Chestnut because of illness. Nancy Sather, the president of the Society and Botanist for the MN/DNR Natural Heritage Program, gave a talk about how she has recruited volunteers to carry out rare plant research in Minnesota. Her presentation was illustrated with slides from sites in southwestern Minnesota where *Lespedeza leptostachya* (prairie bush clover) has been found and where searches for new populations are being conducted.

Again in March bad bugs struck down our scheduled speaker and again a willing and very capable person was found to step in and give an excellent presentation. Robert Dana, Plant Ecologist with the MN/DNR Natural Heritage Program, was ill. His co-worker, Plant Ecologist Norm Aaseng, was able to assemble a slide show with only 10 hours notice and the assistance of Nancy Sather. In his talk he summarized the work he and Robert are doing in Kittson, Marshall and Roseau counties for the Minnesota County Biological Survey. The ecologists' work includes ground survey of sites selected through air photo interpretation. The field work also provides data for the refinement of the Natural Heritage Program's Natural Community Classification, particularly in the classification of brushland and peatland. The data is also being used to develop a vegetation map of the survey area using computer assisted classification from satellite (Landsat TM) imagery in a cooperative project with the U of M Remote Sensing Lab.

Wildflower Garden continued from pg. 1

1. Select a shady part of your lawn where you have difficulty maintaining grass cover.
2. Do not rake up the leaves in the fall. Up to 5 inches of leaf cover are necessary to keep down unwanted grass and weeds and to provide the proper soil texture and protection for woodland flowers.
3. Map the area you have selected locating existing trees, rocks, and bushes. Draw in a network of trails crossing the area. Curved trails are usually more esthetic than straight ones. Paths are important so you do not walk on emerging vegetation and they provide a place to stand or kneel while planting, weeding, or photographing your flowers.
4. Shade tolerant wild flowers and ferns can be planted any time when plants are available, but survival is usually best if planted in the spring or fall when the weather is cooler and wetter. Use your map in deciding where to plant. Low growing plants like the hardy wild ginger can be planted bordering the trail while the tall ostrich fern and trillium belong in the background or center positions.

5. Transplants for your garden can be purchased at the Landscape Arboretum plant sale in May or you can ask a friend for some plants from their garden. Many plants such as ferns and ginger are prolific and must be thinned out or they would dominate a well established garden.
6. Seeds from bloodroot, jack-in-the pulpit, and many other woodland flowers can be collected when the seeds ripen in the summer and fall, and planted in the fall in bare soil, then covered with leaves. In the late spring periodically check the seed beds and remove some of the heavy leaf cover as the new plants germinate and grow. If the new plants come up too thick, some can be transplanted to other sites.
7. It takes a number of years to establish a wild flower garden that resembles the natural wild environment of a wooded area. Avoid planting in straight lines or geometric patterns. A squirrel hides acorns in a random pattern. We should do the same with minor adjustments for artistic or size consideration.

If you now enjoy photographing woodland flowers while on trips away from home, why not get double enjoyment in starting a wild flower garden in your backyard?

Early Herbarium History at the U of M

Thomas Morley

A herbarium like the one at St. Paul has as one of its primary functions that of providing a permanent record of the plants known to grow in the state with their locations. Without the actual specimens with their label data to verify reports of plant occurrences, those reports would be unreliable because of the difficulty of correctly identifying many species in the field where careful comparisons with related plants cannot be made. Errors would be numerous. Such comparisons are possible in the herbarium, and thus determining identifications is another of its chief uses. Even the most experienced persons need this function. In addition the herbarium can provide information on individual localities of plants; plant characteristics such as size, shape, and color of parts; flowering and fruiting times; variation within species; and habitats. While this herbarium concentrates on Minnesota it also contains specimens from all over the world, and therefore these same uses are available to a lesser degree for plants growing elsewhere. The herbarium is consulted further for research of several kinds, for teaching, and for other purposes. Specimens are lent to other institutions and we borrow from and exchange with them.

The utility of the herbarium depends largely on the completeness of its collections, and relatively complete collections usually reflect a long history of collecting. Out of curiosity the author decided to find out how old the earliest Minnesota specimens of vascular plants in this herbarium are. Inquiry showed that no one familiar with the herbarium knew. Upham (1884) and MacMillan (1892) cite numerous early explorers whose publications mention plants of the area; the first published list of plants known to Upham to include Minnesota species is dated 1822. However, there is no indication whether any plant specimens from these early sources eventually found their way into the University of Minnesota herbarium.

The first records of the herbarium's contents occur in an early inventory of the collections of The Geological and Natural History Survey of Minnesota, (hereafter referred to as the Survey) in which the total number of specimens is 3276 (Winchell, 1885)¹. The meaning of the number is not fully clear since Winchell appears to use the words "specimens" and "species" interchangeably on

these pages. In the inventory usually only the dates of receipt are given for the different plant collections, but for a few the dates of actual collections are noted. The earliest of these is the collection of W. E. Leonard, made in 1875-76. However, since collection dates are lacking for most entries and the early records are incomplete, one cannot tell from this reference alone if those are the earliest collections.

Computerization of the label data for Minnesota specimens has begun but is not yet complete enough to supply the needed information. In its absence it was evident that only a search of the herbarium would reveal if any specimens antedating 1875 were to be found. A representative sample of the Minnesota species was thought to be adequate for this purpose. The species selected to be searched were not random but were chosen as being common, reasonably conspicuous, widespread, and diverse, and were judged to be of interest both to amateurs and professionals. The specimens of each species were listed by date and collector from the earliest collections through 1900. Sixty species were tallied, a number thought to be adequate since the basic pattern that emerged was evident by the time ten species had been done and never varied; however, it was only when studying the other 50 that the exceptions to the rule were found. A dozen other species were quickly searched for early specimens and rejected.

In the basic pattern the earliest specimens encountered date mostly from 1875 to 1878 but are often later. Exceptions are an 1849 and an 1861 specimen of *Calylophus serrulata*, an evening primrose (both on the same sheet), a remounted 1861 collection of *Astragalus crassicaarpus* (buffalo bean), and an 1872 collection of *Agastache anethiodora* (giant hyssop). Earlier specimens from the state may of course be in the herbarium. The double mount was purchased from the Missouri Botanical Garden, as was probably the second 1861 collection since both specimens of that date were collected by the same person, T. J. Hale. Index Herbarium records state that the Hale specimens were originally sent to the U. S. National Herbarium in Washington D.C. The *Agastache* collection is from the herbarium of M. S. Bebb, from which no original shipments except willows were sent to Minnesota. Thus one must believe that all collections in the state prior to 1875 were sent to out-of-state institutions or lost. Specimens sent to such institutions were never returned to their source state when storage facilities later became available there, except by exchange or purchase. Direct contributions date from 1875 or later. There was no state organization with facilities for storing and caring for specimens until the formation of the Survey's herbarium in 1875.

In March 1872 the State Legislature passed an Act establishing a Geological and Natural History Survey of the State, and entrusted the implementation of the Act to the University of Minnesota (Laws, 1872, Chapter 30 p. 86; Schwartz, 1964). The Act had in fact been drawn up by W. W. Folwell, President of the University. It included a provision for collecting and preserving plants and storing them for public inspection. Conducting the plant collecting program was initially one of the duties undertaken by N. H. Winchell, State Geologist and Director of the Survey. Since Winchell had to teach botany and zoology as well as geology at first (Regents minutes, 1873; Report of the President, 1876) broad responsibilities were no stranger to him. He apparently began botanical field work in 1873 when he drew up plant lists for certain areas of the state, but he first made collections in 1875 as did two men working for him. The herbarium of the Survey technically dates from this year with the collection of the first Survey specimens.

In its first official recognition of the botanical program the Board of Regents in 1875 (Regent's minutes) ordered preparation of a circular inviting botanical contributions from schools and calling for plant specimens from different parts of the state (also noted in Winchell, 1877). Winchell in response (1876) prepared a two page circular with collecting suggestions for the state's botanists. According to Winchell (1885) this call for specimens was mainly responsible for

the receipt of the collections he listed in 1885. In 1878, however, the University temporarily de-emphasized botanical and zoological work in order to advance geological studies (Winchell, 1879). As the University grew and departments were formed, the Survey herbarium because of its relation to the Survey itself seems to have been treated at first as a state operation independent of and unrelated to the University departments.

Perhaps as a consequence a second herbarium was begun in the nascent Botany Department in 1888, apparently an early initiative of C. MacMillan who was hired in 1887 as instructor in botany and collector for the Survey (Executive minutes 1887; Johnson 1908; Bartlett 1989). The first acquisitions were 6000 specimens of the Sandberg collection, not paid for till 1889 (accession records; Executive minutes 1889). Three years later Ariel (1891), the student newspaper of the day, said that the new herbarium contained 35,000 specimens. A year after that MacMillan (1892) gave the number of specimens as nearly 62,000; he gave no corresponding figure for the Survey herbarium but made it plain (pp. 8, 9) that the two were still separate. He was then both State Botanist for the Survey and Chairman of the Botany Department and thus was in charge of both herbaria; doubtless he promoted their being combined. They evidently had been united by 1894 when a new facility was provided for the Botany Department herbarium (Ariel, 1894). Ariel gave the total number of specimens in the Department's herbarium as about 120,000, a figure which because of its large size must have included the Survey's plants. No notice of the merger was found in a search of the Regent's minutes, the Executive Committee minutes, the annual Survey reports, or the biennial reports of the Regents. MacMillan's own records have been lost.

The Department with its herbarium was housed, at that time, in Pillsbury Hall, a building with a largely wooden interior. In Dec. 1896 MacMillan (1897) in pleading for a fireproof building for the herbarium stated that the latter contained almost 200,000 specimens; he claimed that the herbarium was fifth in the nation in size and value and outlined its contents in some detail. Nearly 50,000 of the specimens were from Minnesota, he said, including all plant groups. Major collectors of the Minnesota specimens are named and the list includes both private collectors and those of the Survey. MacMillan further stated that as a systematic state collection he believed that that of Minnesota "stands easily first in America." Two years later (1899) his estimate for the size of the herbarium was over 200,000 specimens. In succeeding biennial reports the total estimate was omitted.

Table 1 lists all of the collectors who collected ten or more of the 60 species checked, in approximate chronologic order through 1900. Fifty-one collectors are unlisted, those with fewer than ten species; these mostly had one or two, none over seven. Many specimens collected by O. Luggar are undated and could not be included in the count. In the table the years of collection, number of species (of 60) and the number of collections made are given. To give an idea of the sizes of the collections these people made, the total number of specimens each contributed to the herbarium is also given in the right hand column, when the figures are available. The records begin with Winchell's inventory (1885), then there is a gap of three years till the herbarium accession records start in 1888. Those records seem moderately complete but nonetheless there are many omissions in the early years as is seen in the table. In particular the major collections of Sara Manning and Lycurgus Moyer are absent; however, some collections of each had been received by 1896, since MacMillan (1897) includes both in his list of contributors to the herbarium. The figure given for Moyer comes from Bray (1982) and Bartlett (1989). Holzinger, Lyon, Moyer, Wheeler, and sometimes Roberts collected into the twentieth century and the totals given for them must include some of those specimens, since it is impossible to separate in the records collections from the two centuries when the major donations were made in the later century as was especially

the case with Holzinger, Moyer, and Roberts. The dates of the accession records are given for general interest.

Table 1.

Name	Yrs Collected	# Species	# Collections		Accession Records
Leonard, W.E.	1875, 76	12	13		64+ (1885)
Herrick, C.L.	1875-79, 84	25	28		529 (1885)
Gage, A. Jr.	1876	10	10		
Roberts, T. S.	1876-80,85,87,89	36	58		954 (1928,31)
Kassube, J. C.	1877,78	33	35		440 (1885)
Lang, H.D. & W.A.	1878	15	15		
Aiton, G.B.	1878,79,89-92,96	42	74		6,000 (1894)
Manning, S.M.	1878,80,82-90,92,93, 95,98	46	76		
Garrison, O.E.	1879,80	14	19		
Sandberg, J.H.	1879,81-87,89-95,98	57	154		21,101 (1888,94,95)
Hammond, G.A.	1881	12	13		
G. & L.	1884,85	22	22		
Oestlund, O.W.	1884,86,88	26	29		
Foote, L.	1884,86,93,99	11	11		
Moyer, L.R. et al	1885,90-98,1900	33	61		5,000 (1917)
Arthur, J.C., Bailey, L.H., Holway, E.W.D.,	1886	39	44		570 vasc. (1887)
Campbell, J.E.	1886, 95-97	20	27		229 (1897)
Holzinger, J.M.	1886,88,89,91, 95-97,99,1900	30	52		2,037 (1896,1901, 1906,18,20)
Sheldon, E.P.	1889-95	60	335		8,010 (1893-95)
Wickersheim, W.J.	1890,91	11	11		178 (1893)
MacMillan, C. et al	1890-92,94,95,1900	32	42		3,615 (1894,1902)
Sandstein, E.	1891	10	11		187 (1893)
Burglehaus, F.H.	1891,92	19	25		
Ballard, C.A.	1891-93, 1900	55	159		2,181 (1893,96,1900)
Taylor, B.C.	1891,92,96	45	95		1,848 (1893)
Menzel, M.	1891,92,94-97	24	40		261 (1893,96,98)
Frost, W.D.	1892,94	37	53		543 (1893,94)
Anderson, A.P.	1893	17	18		903 (1893,94)
Wheeler, W.A.	1893,96,99	25	30		676 (1900, 02)
Lyon, H.L.	1899,1900	22	24		269 (1900)
Miscellaneous survey collections					5,000 (1893)
Estimate for unrecorded major collectors					3,550 (# collections)
Estimate for the 51 minor collectors (some recorded, some not)					3,000 (# collections)

Unfortunately, some of the accession numbers apparently include duplicate specimens while others include only numbers of collections and exclude the duplicates, so that no accurate total can be made for either category. Judging by the large totals given, the figures for Aiton, Sandberg, and Moyer must include duplicates. On the other hand, a check of the available field notebooks, those of Anderson, Ballard, Frost, Sheldon, Taylor and Wheeler shows collection numbers that match the accession numbers rather well. Therefore the latter are judged in these

cases to be numbers of collections as are probably most of the rest of the entries. Another consideration is that the Survey collectors at least took nonvascular plants as well as vascular, so that an accurate total for vascular plants cannot be had. Judging by a scan of the field notebooks, not over 30% of the collections were nonvascular. A rough estimate is that there were between 28,000 and 32,000 specimens of Minnesota vascular plants in the herbarium at the turn of the century, an estimate arrived at using the numbers of the 60 counted species as points of reference.

The first count of all specimens, after the 1899 estimate, was begun in 1927 using a numbering machine and was completed for the vascular plants (world-wide) in 1928 when there were 179,790 specimens; the world-wide nonvascular count of ca. 44,866 was finished in 1929 (herbarium records). More specimens of both groups were rapidly added so that by the end of 1929 the total count for the whole herbarium was 269,042.

Several observations can be made regarding the early collectors. One of them, T. S. Roberts, became a renowned ornithologist. Only Sheldon collected all 60 of the selected species, with Sandberg and Ballard close behind. The difference between the amateur and the more professional approach is plain in that in the former usually a single collection of each species was made whereas in the latter the same species was collected more than once in order to show its distribution and variation. The earliest collectors often gave inadequate label data since the format had not been established and it was often not realized how important certain details would be. The data were often very general; the labels for the 1849 and two 1861 collections referred to above give only the year for the date, which was frequently done; sometimes the date was omitted. The labels for the 1849 specimen of *Calylophus* and the 1872 specimen of *Agastache* give the location only as "Minnesota", and O. E. Garrison's labels often state only "Upper Mississippi"; it was common to give only the county. Some collectors, in modesty, omitted their names or gave only their initials, some of which are still unidentified such as "G. & L." and "E. D.". Dr. J. W. Moore (personal communication) suggests C. J. Gedge and J. B. Leiberger for the former. Serial numbers were often omitted at first.

The number of collectors active in a given year varied widely. Starting at four in 1875, the number rose to eight in 1878, dropped to two by 1881 and 1882, then rose irregularly to 18 in 1891 and dropped again to ten by 1900. The first peak suggests a rise in enthusiasm following the call for collections in 1876, combined with the early collecting program of the Survey under Winchell for which Leonard, Herrick, and Roberts worked (Upham 1884; Winchell 1885). The drop in numbers following 1878 correlates with the temporary deemphasis of botanical and zoological studies referred to above. The second peak appears to be a response to the developing field of botany and the leadership of MacMillan who as State Botanist employed Ballard, Sheldon, and Taylor to collect for the Survey in 1891 (MacMillan 1892); Anderson, Frost, and J. Tilden also worked for the Survey under MacMillan (1897).

Wide differences appear in the number of times each of the 60 chosen species was collected. In general, the earliest collectors avoided trees, grasses, and aquatics, suggesting their amateur interests. Sometimes no reason can be ascribed for the failure to collect certain species. In the following list of the selected species the number of times each was collected is indicated:

Adiantum pedatum (maidenhair fern, 28), *Athyrium angustum* (lady fern, 30), *Botrychium virginianum* (Virginia grape fern, 36), *Cystopteris protrusa-tenuis* (fragile fern, 21), *Dryopteris carthusiana-expansa-intermedia* (toothed shield fern, 19), *Equisetum arvense* (field horsetail, 24), *Matteuccia struthiopteris* (ostrich fern, 14), *Osmunda regalis* (royal fern, 10), *Pellaea glabella* (smooth cliff brake, 9), *Acer saccharum* (sugar maple, 22), *Achillea lanulosa-millefolium* (yarrow, 37), *Agastache anethiodora* (giant hyssop, 45), *Amorpha canescens* (lead plant, 39), *Andropogon gerardi* (big bluestem, 35), *Anemone canadensis* (Canada anemone, 54), *Anemone quinquefolia* (wood anemone, 30), *Apocynum androsaemifolium* (spreading dogbane, 39), *Aquilegia canadensis* (columbine, 34), *Arisaema triphylla* (jack-in-the-pulpit, 26), *Artemisia ludoviciana* (wormwood, 46), *Asarum canadense* (wild ginger, 32), *Asclepias syriaca* (common milkweed, 13), *Astragalus*

crassicaulis (buffalo bean, 36), *Caltha palustris* (marsh marigold, 22), *Calylophus serrulata* (evening primrose, 41), *Carex sprengelii* (Sprengel's sedge, 24), *Chamaedaphne calyculata* (leatherleaf, 16), *Coreopsis palmata* (stiff tickseed, 41), *Cornus stolonifera* (red osier dogwood, 53), *Delphinium virescens* (prairie larkspur, 33), *Elymus canadensis* (nodding wild rye, 25), *Erythronium albidum* (white trout lily, 14), *Geum triflorum* (prairie smoke, 24), *Hypericum pyramidatum* (St. John's wort, 14), *Lathyrus venosus* (veiny peavine, 38), *Liatris aspera* (blazing star, 20), *Lilium philadelphicum* (wood lily, 36), *Maianthemum canadensis* (Canada mayflower, 48), *Monarda fistulosa* (horsemint, 27), *Nymphaea tuberosa* (white waterlily, 12), *Oenothera biennis* (evening primrose, 24), *Panicum virgatum* (switch grass, 28), *Petalostemum purpureum* (purple prairie clover, 46), *Prunus virginiana* (choke cherry, 45), *Psoralea esculenta* (Indian breadroot, 16), *Pulsatilla nuttalliana* (pasque flower, 38), *Quercus macrocarpa* (bur oak, 19), *Ratibida pinnata* (gray-headed coneflower, 20), *Rosa blanda* (smooth wild rose, 35), *Sagittaria latifolia* (arrowhead, 32), *Sanguinaria canadensis* (bloodroot, 23), *Senecio pauperculus-plattensis* (ragwort, 44), *Smilacina stellata* (star-flowered false solomon's seal, 40), *Solidago rigida* (stiff goldenrod, 38), *Stipa spartea* (needlegrass, 21), *Tilia americana* (basswood, 27), *Uvularia grandiflora* (yellow bellwort, 31), *Vaccinium angustifolium* (blueberry, 20), *Viola pedatifida* (birdsfoot violet, 24), *Vitis riparia* (wild grape, 29). Average count = 29.

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The Flora of North America Project

Missouri Botanical Garden

The Flora of North America Project is a collaborative, bi-national effort of more than 20 major botanical institutions to compile the first comprehensive description of all plants growing spontaneously in the United States and Canada. About 17,000 species of vascular plants grow in this area, and of the native genera, 38% are found only in North America.

In addition to the twelve volumes of the Flora published by Oxford University Press (the first scheduled to appear in late 1991), all the information will be contained in a computerized database called TROPICOS. The data base will be continually updated and maintained as a permanent resource. It will allow users to access the information in a variety of ways, providing answers to such questions as, "What spring-flowering plant species with yellow flowers and simple leaves occur in the grasslands of Nebraska?"

The Flora will be useful not only for theoretical work in plant studies, but also for general reference in biology, conservation, wildlife management, forestry, horticulture, environmental sciences, and agriculture. As the single authoritative reference, the Flora will fill a crucially important need in providing thorough and reliable information for identifying endangered species.

The Missouri Botanical Garden serves as the organizational center for the Flora of North America. Dr. Gerald Ownbey and Dr. Anita Chowela (both from the University of Minnesota Plant Biology Department) are writing portions of the Flora.

1991 Spring & Summer Activities

QUEEN'S BLUFF HIKE: May 25, 8AM - 5 or 6PM. Dr. Gerald Ownbey will lead us on a tour of the prairie on Queen's Bluff at O.L.Kipp State Park south of Winona. In addition to being an exquisite example of the dry goat prairies of southeastern Minnesota, Queen's Bluff offers a spectacular view of the broad Mississippi River Valley. Dr. Ownbey's familiarity with this particular site, gives participants an intimate yet broad look at the plant community found here. Bring your binoculars, lunches, plenty to drink, protection from sun and rain and good hiking shoes. The size of the group will be limited due to the sensitivity of the area. The group will leave at 8AM from the U of MN St. Paul Campus. To sign up and get directions, call Don Knutson at

GRASS WORKSHOP: June 1, 10AM - Noon, 365 Borlaug Hall, U of MN, St. Paul Campus, \$3 fee (Proceeds to go to the U of MN Herbarium). Anita Cholewa from the University of Minnesota Herbarium will review the characteristic structures of grasses and teach participants how to identify many of Minnesota's grasses. Attendance is limited so sign up early by calling Anita at

INTRODUCTION TO MOSSES & LIVERWORTS: June 8, 9AM - 1PM, Cedar Creek Natural History Area. Jan Janssens from the U of M Ecology Department will present a slide show on moss and liverwort diversity and growth forms and will lead a field trip to the Cedar Bog Lake

cedar swamp and the Beckman Lake *Sphagnum* mat at the Cedar Creek Natural History Area. Meet at the laboratory building of the U of M Cedar Creek Natural History Area at 2260 Fawn Lake Drive NE, Bethel, MN. Take Highway 65 north to Anoka County Road 24 (76 gas station at intersection) go east to T-intersection and then north on Fawn Lake Drive to the laboratory. Bring boots, insect repellent, hand lens and a bag lunch. Maximum number of participants is 10. The session will be cancelled if it is raining. To sign up contact Jan Janssens at _____ or leave a message at _____.

PLATANThERA SEARCH: July 6, 9AM, Mac's Cafe, 106 Washington Ave. NW, Fertile, MN. Nancy Sather from the MN/DNR Heritage Program will lead the group to see the endangered *Platanthera praeclara* (Western prairie fringed orchid) at Burnham Wildlife Management Area and then go to search for the orchid in new areas. Participants will be out all day, so bring a lunch, plenty of liquids, protection from the sun and rain gear. To sign up call the Heritage Program's B.J. Farley at _____. In case of rain on the day of the trip, call _____ or _____ to be sure the group is still going out.

POLEMONIUM BOG WORK DAY(S): July 13 & (optional) 14, St. Louis Co. near Hibbing. Roger Lake, of MN/DNR Wildlife Research will host a field trip featuring the rare Western Jacob's Ladder (*Polemonium occidentale*). The first day's activities will involve seeing the plant and its swamp habitat, then helping on a project yet to be determined. The second day (optional) will involve more Polemonium work or visits to some of the other interesting sites in the area. Camping is available at Roger's cabin. For details call him at _____.

WEAVER BOTTOMS CANOE TRIP: August 3, 10:30AM, The Upper Mississippi River National Wildlife and Fish Refuge boat landing at Weaver, MN in Wabasha Co. Come see the spectacular water lotus in full bloom. Its creamy white flowers set off by the brilliant blue of pickerel weed. An expert in wetland biology will join the group to make this relaxing day on the water a memorable learning experience. Individuals must provide their own canoe, paddles and PFDs. It is also suggested that you bring lunch, plenty of liquids, protection from sun and rain, and binoculars. If you have any questions, please call Ellen Fuge at _____.

MNPS PICNIC: September 21, Crow Hassen Park. This date marks the annual Prairie Day Celebration at Crow Hassen Park. Come enjoy the Prairie Day activities (including interpretive hikes of the restored prairie areas and wagon rides) and meet with other MNPS member for a pot luck noon picnic. Check for the location of the picnic at the trail head building at the entrance to the park. Call John Moriarty at _____ for details and directions to the park.

SAVAGE FEN WORK DAY: October 19, 10AM - 4PM, Savage Fen Scientific and Natural Area (SNA). Ellen Fuge, Management Specialist for the MN/DNR SNA Program, will lead the trip. Follow Hwy 13 west through Savage (toward Shakopee) to the stoplight. Turn south and proceed about 1/2 mile to 128th street on the east side of Hwy 13. Follow 128th to where it dead ends after about 1/2 mile. The fen is a magical, calcium-rich wetland dominated by sedges that hosts an array of special plants found in few other places. Woody plants have begun to encroach on this plant community since periodic wild fires, historically responsible for keeping the brush out, have been suppressed. Volunteers are needed to girdle and cut back the woody invaders. Dress warmly, wear boots (or tennis shoes if its a warm day and you don't mind getting your feet wet), bring gloves, lunch, plenty of liquids, and protection from sun and rain. Some tools will be

available but bring a pair of loppers if you have them. Group size is limited to 15. Please reserve by calling The Nature Conservancy at 612/379-2134.

PRAIRIE DAY CELEBRATION: Minnesota Prairie Day is an annual celebration of our state's prairies- the open, grassy plains that once covered much of the Midwest. It is a day for Minnesotans to rediscover their prairie heritage, and have a fun time as well. We once had 18 million acres of prairie in Minnesota. Today less than 1 percent remains. Our surviving prairie remnants are wonderous areas. They are home to dozens of rare and endangered plants and animals, and contribute greatly to the natural beauty of our state. Mid-August is the peak time to enjoy the color and beauty of prairie wildflowers and grasses. So come and enjoy the many activities planned throughout the state for Prairie Day--August 10, 1991. Prairie Day celebrations will be held at:

- Blue Mounds State Park, near Luverne in SW MN - This park is situated on one of the outstanding physiographic features of the Coteau des Prairie- the precipitous escarpment of Sioux Quartzite known as the Blue Mounds. This outcrop forms a cliff over a mile long and up to 175 feet high. The top of the ridge consists of over 800 acres of prairie, with a number of rare plants and animals. The park also boasts a bison herd.
- Kellogg Weaver Dunes, near Kellogg in SE MN - This site encompasses three management units: the Weaver Dunes Preserve owned by The Nature Conservancy (TNC), the Kellogg Weaver Dunes Scientific and Natural Area, and the McCarthy Beach Wildlife Management Area (WMA) both owned by the Department of Natural Resources. These three sites encompass a good portion of the largest sand dune complex along the Mississippi River in southern Minnesota. The dunes contain a series of successional stages, ranging from active sand blowout, to stabilized dry and wet prairie, to oak and jack pine savanna. The WMA protects an extensive wetland complex. Fourteen rare plant species and 3 rare animal species occur here, including the state's largest population of Blandings turtles. Peregrine falcons have also been hacked out on the TNC preserve. The Native Plant Society is a co-sponsor of this Prairie Day event.
- Sherburne National Wildlife Refuge, near Zimmerman in East-Central MN - Sherburne National Wildlife Refuge is situated on the Anoka Sand Plain. The refuge has several native prairies and a number of prairie restorations. Minnesota's largest prairie nursery, Prairie Restoration Inc, is just down the road from the refuge. One likely focus of activities at this site will be prairie restoration.
- Minnesota Valley National Wildlife Refuge, in Bloomington- Metro - Minnesota Valley National Wildlife Refuge contains several prairies on the river-bluffs and in the floodplain and river terraces. The refuge has just opened a new visitor center with several prairie exhibits. Black Dog State Scientific and Natural Area is also nearby and contains some excellent prairie and fen habitat.
- Kittson County Prairies, near Karlstad in NW MN - This event will focus on northwest Minnesota's brush prairies and aspen parklands. Beginning in Karlstad, participants will visit some of the state's largest prairie complexes, many on state Wildlife Management Areas. Biologists from the DNR's County Biological Survey are just completing a biological survey of Kittson County and will talk about some of their discoveries.

For more information about Prairie Day contact:

Peter Buesseler
DNR Prairie Biologist
1221 E. Fir Ave.
Fergus Falls, MN 56537
(218) 739-7576

or

DNR Information Center
500 Lafayette Road
St. Paul, MN 55155
Twin Cities: 296-6157
MN Toll Free: 1-800-652-9747 (ask for DNR)

WILDFLOWER ROUTES: On your way to some of this summer's activities get off the interstate and view some of our roadside prairies. The Department of Transportation and the DNR are burning a number of these prairie remnants. Excellent shows of prairie grasses and forbs can be found along the following highways: T.H. 22/109 (MN Lake to Alden, south of Mankato), T.H. 5 (Arlington to Gaylord, west of the cities), T.H. 218 (near Blooming Prairie), T.H. 56 (Rose Creek to LeRoy), T.H. 9 (Benson to Breckenridge, western MN), and T.H. 11 (west of Baudette, lots of orchids!).

Native Plant Watch.....

Landowners Put Prairie in the Bank

Peter Buesseler

The near elimination of native prairie in Minnesota has spurred a concerted effort to protect the remaining parcels. Public agencies and private conservation groups have acquired and now protect more than 35,000 acres. Landowners receive tax exemption for protecting 12,000 additional acres under the Minnesota Prairie Tax Exemption Program. There is, however, much left to be done. More than 100,000 acres of the state's native prairie receive no protection at all.

In 1987, as part of the Reinvest in Minnesota (RIM) legislation, the state legislature created the Native Prairie Bank. This program authorizes the DNR to protect native prairie by entering into conservation easements with landowners. The purpose of these easements is to provide protection for the prairie resource while still allowing the land to remain in private ownership.

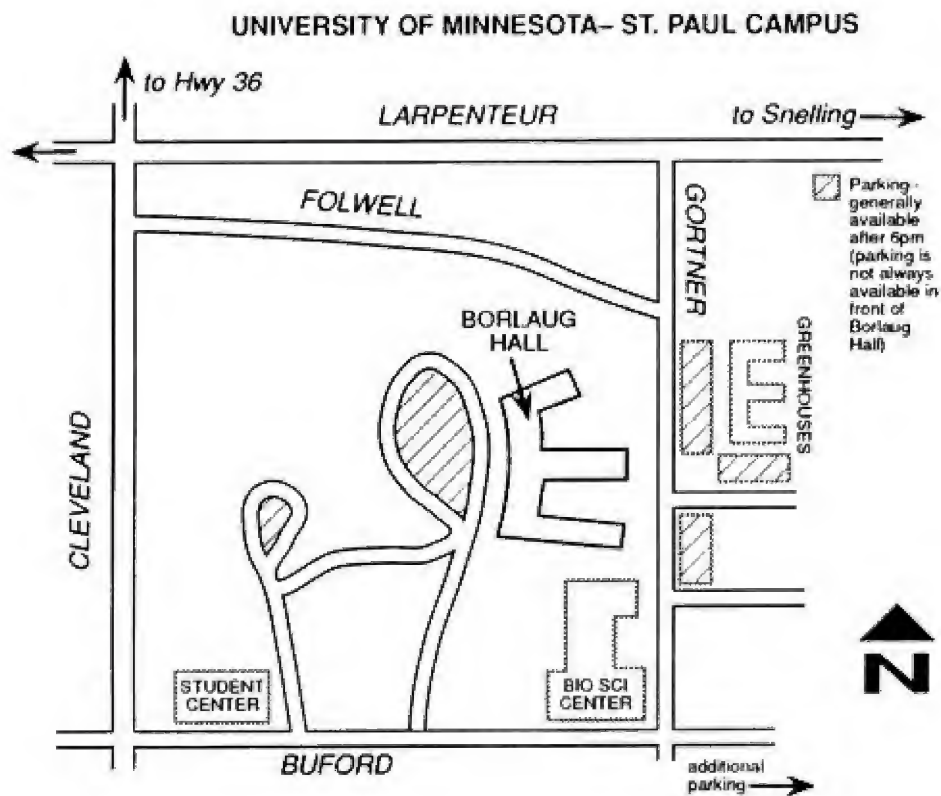
The program has only just begun, but by spring of this year a dozen landowners had enrolled, protecting 1250 acres. The RIM bill being considered by the Minnesota Legislature includes \$1,130,000 for an estimated 30 more easements—approximately 3000 acres. The goal is to eventually enroll 75,000 acres of native prairie. Landowners like the program because they can keep their land and make sure it will remain in native prairie for generations to come.

To be eligible for Prairie Bank a tract must be covered by native prairie vegetation, must never have been plowed, and must have less than 10% tree cover. In certain situations, agricultural practices such as haying may be benefiting the prairie. If so, the DNR and the landowner may agree to adjust the payment rate to allow the practice to continue.

For more information about the Native Prairie Bank Program, call or write:

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Minnesota Native Plant Society



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